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It has been shown that spinach slowly loses its vitamin C potency even in low temperature storage; at room temperature, one-half of the vitamin C is lost in three days; practically all antiscorbutic potency disappears in seven days (1).

Another report indicates a loss in vitamin C of 78 per cent in spinach stored two days at room temperature and 80 per cent loss in asparagus tips during four days' storage (2).

The vitamin C content of apples is markedly reduced during cold storage: 20 per cent in 4 to 6 months and about 40 per cent in 8 to 10 months (3).

Vitamin A in apples is, however, subject to less destruction than vitamin C during prolonged storage (4).

Prolonged cold storage of pears may result in a loss in the vitamin A and vitamin C content of nearly 50 per cent (5).

Further, solution losses which may occur during cooking vary with the individual product and with the method used in cooking. From 40 to 48 per cent of vitamin C may be lost to the water in which peas are cooked (6).

Vitamin C losses in 12 different vegetables have been reported to vary from 12 per cent in asparagus to 80 per cent in white onions (7).

These data demonstrate the seriousness of solution losses of vitamin C. It is considered probable that other water soluble vitamins are affected in a similar way.

Thus, by the time fruits and vegetables spend some days in transit or storage before reaching the kitchen and are cooked by the usual home method, much of the original vitamin content may have been lost. Little can be done to prevent storage losses when fresh fruits and vegetables are not available from the home garden, but solution losses may in part be overcome by using the cooking water.

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(1) 1936. Food Research 1, 1.
(2) 1936. J. Soc. Chem. Ind. 55, 153T.
(3) 1933. J. Agr. Res. 46, 1039.

(4) 1936. Food Research 1, 121.
(5) 1934. J. Am. Diet. Assn. 10, 217.
(6) 1936. J. Nutrition 12, 285.

(7) 1936. J. Home Econ. 28, 15.
(8) a. 1921. Proc. Soc. Exp. Biol. Med. 18, 164.

b. 1928. Ind. Eng. Chem. 20, 202.
c. 1929. Ibid. 21, 347.
d. 1932. J. Home Econ. 24, 826.

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CASE HISTORY: T. A. Male, white, age 27. Acute exacerbation of a chronic sinus infection

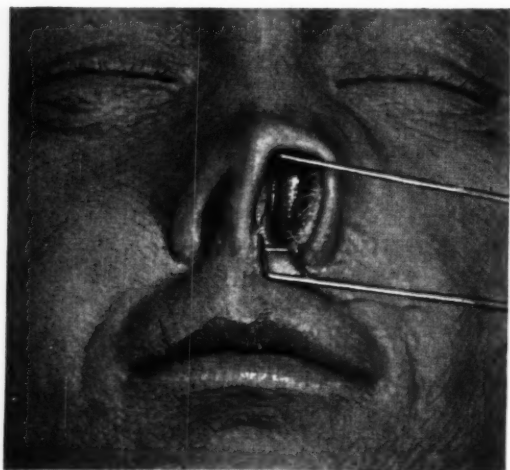


FIG. 1. 2:35 P.M. Before treatment.

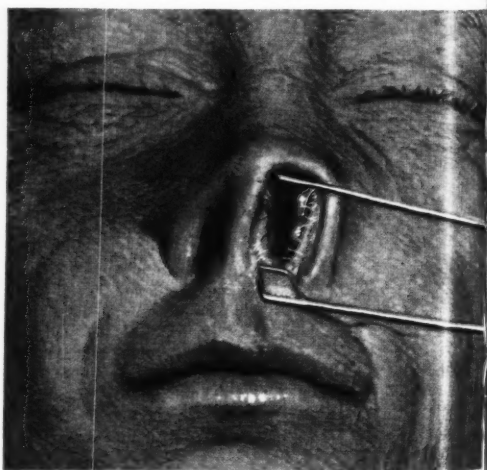


FIG. 2. 2:57 P.M. After using Benzedrine Inhaler. Drainage established

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*Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245
Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154
N. Y. State Jour. Med., June 1935, Vol. 35, No. 11
Arch. Otolaryngology, Mar. 1936, Vol. 23, No. 3, 306-309

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References: Kugelmass, Clinical Nutrition in Infancy and Childhood, Lippincott; Marriott, Infant Nutrition, Mosby; McClean & Fales, Scientific Feeding in Infancy, Lea & Febiger.

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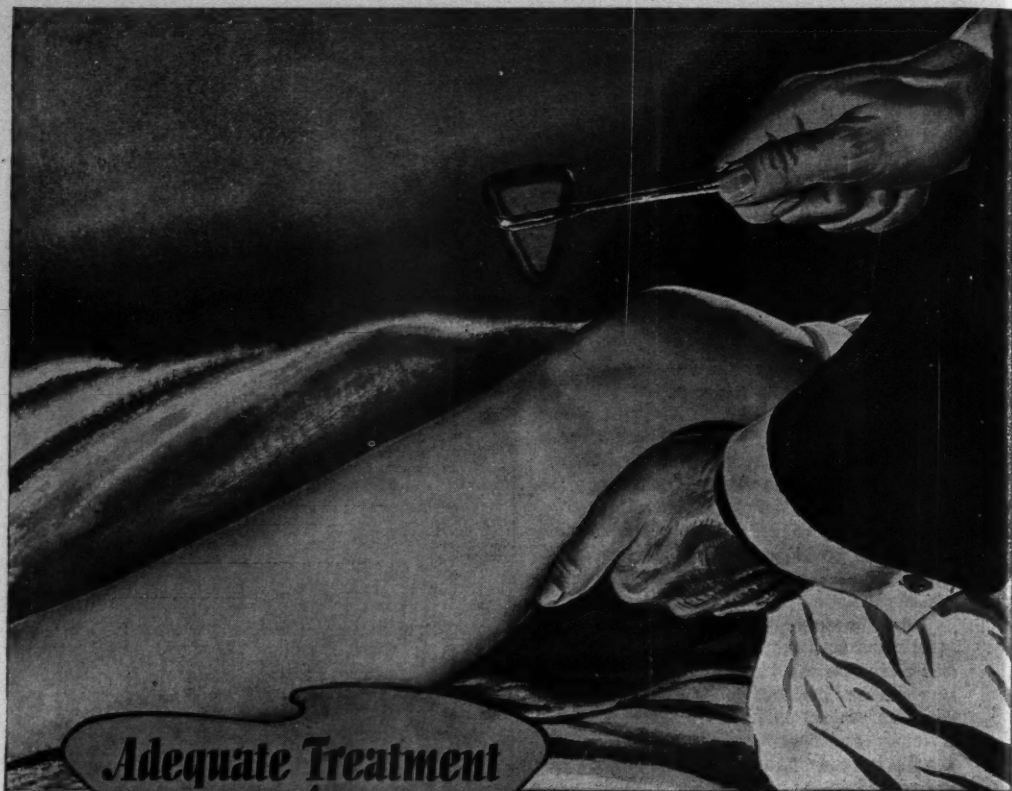
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DIPHTHERIA IMMUNIZATION OF CHILDREN*

ARTHUR C. JOST, M. D.,**
Dover, Del.

We think that the history of diphtheria control in Delaware can be pretty well told by this set of figures which I shall read to you. This is the report of the cases of diphtheria reported to the State Board of Health over a period of some years, commencing with the year 1925. This is actually our office report of cases by months for those years: First year, 204; second year, 120; third year, 93; fourth year, 119; fifth year, 123; sixth year, 127; seventh year, 271; eighth year, 126; 94 in the year 1933; 73 in the year 1934; 50 in the year 1935, and I think it is just 30 to the first of this month. I think there has been one case reported to the board in the present month, in October, making 31 in practically ten months of the year.

There are one or two things that come out of this. In the first place, until the present year, 1936, there were only two months in the history of the state, in the eleven years, in which not an instance of diphtheria had been reported to the department. On the other hand, in the present year, 1936, there have already been three months during which no cases of diphtheria were reported. We had no cases reported in February, in August or September of this year, and only one case so far this month.

Deaths roughly have taken rather a parallel course. In the year 1936 we have had, up to now, one death from diphtheria. It was a case of diphtheria in a woman, a rather elderly woman, with an ulcerated lesion and an infection of the ulcer. So that up to the

present time we haven't had a case that really could be reported a diphtheria death in the state.

We think that that pretty well sums up the progress of diphtheria in the state during these years. There are one or two things that show up fairly well in this. (Using slides).

In the first place, there is the fact of what you might call periodicity of the disease. It isn't seen quite so well in the report of morbidity as it is in the report of mortality, in the death statistics. But there is not much doubt at all, in so far as the state of Delaware is concerned, that diphtheria has a kind of cycle of between six and seven years between crests of the waves. You will see here that there was a low portion in 1927, and then a correspondingly low portion about the year 1933. It has only been since 1933 that we are actually having shown to us the definite results of our immunization program. I think I can explain to you why that is in a short time.

In the first place, therefore, there is the periodicity. Second, a thing quite noticeable here is the fact that one of the problems which we have developed for ourselves as the result of our work is the question of when is diphtheria diphtheria, so to speak? If you look through this you will see that in the month of November, 1931, there were 144 cases reported. The total of that year was 271. The history is this: We heard of a case of death, I believe, of diphtheria in a little rural community, not very far from Dover, and our officers went to investigate. They found that this child was a pre-school child, a child who hadn't attended school.

We had occasion to go into the school. We examined that school carefully, and some of the other schools in the vicinity. We made

*Read before the Medical Society of Delaware, Rehoboth, October 13, 1936.

**Executive Secretary, Delaware State Board of Health.

careful examinations, and we found that a very large percentage of all the children attending those schools gave positive throats.

These children had all been protected by immunization. They themselves were not ill, but they were sources of danger. They were carriers, and they had infected persons of younger ages in their immediate families. We listed those persons as diphtheria, although they themselves gave no evidence of clinical diphtheria. We had to take care of them. We had to quarantine them and put them under treatment until their throats were clear.

Consequently, we listed them as definite cases, whether we should have done so or not. But we are continually finding that condition, so much so that it is a matter of routine not only to examine the swabs that come in for diphtheria organisms, but to examine for virulence as well.

We are finding that the children in the schools very often give positive throats and they are very often sources of danger to the younger children in their families when they go home. It is a matter of more or less difficulty to us at times to know just when a case is nothing more than a carrier, perhaps with fever or some evidence of illness, due to some inter-current infection, or a case of actual diphtheria.

We started this immunization program, as you know, in the state in the year 1926, and since that time we have used a number of diphtheria preparations. In the years 1926 and 1927 we used toxin-antitoxin, horse serum. You all remember that treatment, a three-dose course. In 1928 we used toxin-antitoxin with sheep serum; in 1929, the toxin-antitoxin goat serum; in 1930, 1931 and 1932 we used toxoid, the old toxoid which you remember so well—the two-dose treatment. In 1933, 1934 and 1935 we used the alum precipitated toxoid. That was the one-dose treatment.

The advantages of a one-dose treatment are so very many that from an administrative point of view you will not wonder at all that we adopted that. For instance, if we had to give a child three doses of preventive, it very often meant we had to make about five visits to that school. That meant a lot of time on

the part of the staff, the physician and all the nurses, and it made it very difficult indeed for us to do the work.

Now the conditions are altogether different. If you can see a child and give one dose and finish up the work and be sure that the treatment is given, it has so many advantages over the old former treatment that you will not wonder that this is the procedure now followed.

As you will see here, much of this work which we have undertaken with testing and so on has been for the purpose of trying to find out the relative value of these different preparations. We have in the office now a total of 67,723 immunizations which have been given up to December 31, 1935. A card index file has been maintained from the beginning of the work. This file contains the names of all the persons to whom treatments have been given by members of the staff of the State Board and, as well, the record of some treatments by private practitioners. The record of the work done privately is probably quite incomplete.

Those 67,723 are individual treatments, not individuals. We have some curiosities in our records. I think there are one or two records of children who have been immunized every succeeding year from 1926, six or seven consecutive doses. It is almost impossible to keep these children out of the line in the school and you can understand we can't carry around with us our complete file of all the children who have been immunized. When a child comes up to the treating physician, he is apt to get his dose and he is recorded. When we go to look up the case in the office we find that we have already treated that child. I think some children have been treated as many as six times. Well, we have encouraged that to a certain point, at least so far as the second treatment is concerned, and we show in the course of this paper why it is that we do so.

During the year 1935, 5,680 doses of alum toxoid were administered by the State Board staffs. This number exceeded by over 40% the number of births taking place in the state during that year. It is considered that, if the number of immunizations continues to

exceed the number of births a greatly desirable reserve of immunity will have been built up. Especially during the last several years stress is being placed upon treating children of early ages. This group includes infants after the age of six to nine months, all children of pre-school ages and children in the first, second and third grades of school life.

In 1931, 3,298 Schick tests were made by Dr. Sargent, in order to determine if possible the value of the preventive work done up to that time. The tabulation of the results is given herewith.

Results of Schick tests in April, 1931:

	Number Negative Tested Per Cent	
1926 Toxin-antitoxin, (horse serum, three doses)	507	66.7
1927 Toxin-antitoxin, (horse serum, three doses)	481	73.2
1928 Toxin-antitoxin, (sheep serum, three doses)	509	80.2
1929 Toxin-antitoxin, (goat serum, three doses)	480	79.4
1930 Toxoid, plain (two doses)	583	80.8
No record of immunizing treatments	721	60.7

I told you that we haven't very many records of the treatment by private practitioners, and it is altogether likely that many of those persons who were tested had been treated by their own physicians and had actually been protected, although we had no record of it. These records that we refer to are our own treatment records. It is practically impossible, as you will understand, for us to keep records in the department files of all the children treated by the private practitioners all over the state.

With this data on hand, it was thought advisable in the early months of 1936, to Schick-test children who had received alum toxoid, so that a comparison might be made of the results obtained from the various preparations and accordingly 2,481 Schick tests were made on pupils of the Wilmington schools in February and March of that year. A period of two months or more had elapsed after the administration of the immunizant. Preliminary Schicks had not been done. The Schick material used both in 1931 and 1936 was purchased from reliable commercial

houses. About 20 per cent of the children were colored.

Results of Schick tests in 1936:

	Number Negative Tested Per Cent	
1930, 1931 and 1932 Toxoid, plain (two doses)	185	74.6
1934 Toxoid, alum-pptd (one dose) ..	343	47.1
1935 Toxoid, alum-pptd (one dose) ..	448	88.8
1934 and 1935 Toxoid, alum-pptd (one dose given each year)	152	96.1
No record of any treatment	767	60.5

Tests not read and groups either so small in size as to make percentages inconclusive or of persons irregularly immunized, make up the balance of the number to whom Schick tests were given. Plus-minus reactions were considered as positives.

After 454 children had been given two doses of toxoid in February, 1930, Schick tests in April, 1931 (14 months later) showed 80.8 to be negative. Of 343 children given one dose of alum precipitated toxoid in 1934 and Schick tested in February and March, 1936 (also 14 months later) only 67.1 per cent were negative. Of 448 children given one dose of alum precipitated toxoid in November and December, 1935, 88.8 per cent were negative in February and March, 1936.

It is planned to Schick these children again in a year in order to see if the immunity is being lost. Of 152 children treated with alum toxoid both in 1934 and 1935, 96.1 per cent were negative.

The conclusions seem to be that one dose of the alum toxoid does not induce immunity as satisfactorily as two doses of the older toxoid. On the other hand, two doses of the alum preparation give a greater degree of immunity than two doses of the plain toxoid. It has not been the practice of the board to discourage parents who wish their children to have the treatment repeated, at least once. Beyond that it is doubtful if additional treatments are advisable. There are departmental records, however, of persons who have had five or six treatments.

We have never been able to get results such as reported from Virginia and Alabama and a large number of places in which some very

enthusiastic physicians will say they have been able to get 90.95 and 98 per cent satisfactory results. We have never been able to do anything like that. The very highest we have ever been able to get was 96.1 resulting from two consecutive doses of the alum toxoid. Our other results, as you will see (again referring to slides) are down into the 70's or 80's.

The immunization record files are immediately consulted whenever a case of diphtheria is reported to the board. The following is a synopsis of the records of instances of the disease among children who have received preventive treatment. It was not possible to carry this examination back beyond the year 1933.

There are records which indicate that twenty-four children who have been either partially treated or have received the full course of injections supposed to form a treatment having later on become ill with the disease.

Dr. Sargent, whom you all know and who was with us for some years, tells us that the number was considerably larger than twenty-four, but we know of twenty-four, we believe.

Of these there was one death only, that of a child in the year 1936, who had received one dose of a three-dose course in 1931. Of the remaining twenty-three, there were ten in 1933, seven in 1934, four in 1935 and two up to the present this year. They are considered by years as follows:

1933: Two cases had been treated with toxin-antitoxin four and seven years previously respectively. Four cases had been treated with toxoid from one to three years previous to the attack of diphtheria. One case had received two treatments of a three-dose course of toxin-antitoxin, five years previously. One case had been irregularly treated with toxoid one year previously. One case had been treated with toxin-antitoxin five years previously and partially treated with toxoid two years previously. One case had been Schick negative one month before the attack of diphtheria.

1934: Two cases had been treated with toxin-antitoxin from six or eight years pre-

viously. Three cases had had toxoid from two to three years previously. One case had been partially treated with toxoid three years previously. One case had been treated with toxin-antitoxin six years and with toxoid four years previously.

1935: One case had been treated with toxin-antitoxin eight years previously. Three cases had had toxoid four years before the onset of the diphtheria.

1936: One case had had toxin-antitoxin eight years previously. One case had had three doses of toxin-antitoxin in 1927, two doses of toxoid in 1930 and a dose of alum toxoid in 1934.

That one course of treatment will protect you have to accept with a grain of salt. Here is one child with three doses of toxin-antitoxin in 1927, two doses of toxoid in 1930, and a dose of alum toxoid in 1934, and still the child had diphtheria.

At the commencement of the present year there were records of there having been given treatments to 5,411 children under five years of age. According to the census of the year 1930 the number of children in the state aged less than five was 19,294. It is doubtful if the number is now so high, since the birth rate since 1930 has been quite noticeably less than it was about the time the census was taken and for several years previously. Our records further indicate that treatment had been given to 33,638 children who were aged between five and fifteen. The population of that age group was 44,935.

It is considered by the board that we have thus succeeded in having treatment given to nearly thirty per cent of all the children of the state who are aged under five, and to seventy-five per cent of all the children who are aged between five and fifteen. Our main effort must for some years be spent in carrying the treatment to the younger group. Only during the past two or three years have we succeeded in getting into that group at all, and only during those same years has there been the satisfactory diminution in the num-

ber of cases and deaths for which we have been striving.

The opinion is that if you can get from twenty to twenty-five per cent of our population under five and over fifty per cent of the population between five and fifteen protected, you have diphtheria pretty well on the run.

We think we have that. If you will go back again to the reports of the disease by months you will see that since we have measurably obtained our aim, diphtheria has been going down. We have only been able to get that within the past two or three years. We started in doing the school children, especially, and it has been only in the last two or three years that we have been able to get into that pre-school group. We now have that group pretty well fixed up, and we have the school group immunized, we think, to an extent of sixty or sixty-five per cent.

And we think that if we can succeed in holding the ground that we have gained, diphtheria can be considered as under control.

Thank you very much indeed.

DISCUSSION

DR. L. B. FLINN (Wilmington : May I say just a word?

I think this report of Drs. Jost and Beck of the Board of Health is very instructive, and I would like to take this opportunity to congratulate them on the splendid work they have done. It certainly seems that this report proves beyond question the value of preventive treatment, giving a logical treatment in regard to diphtheria. It brings home to us who are treating particularly the children in private practice just what is the proper mode of procedure for us.

If I interpret Dr. Jost's statistics correctly, I think perhaps the rather arbitrary plan which some of us—perhaps most of us—have been using is very effective; namely, starting at about the age of six months to immunize, giving usually one dose of the alum toxoid, Schick test in six months; repeating the alum toxoid and Schick positive, and thereafter the Schick test every two years and acting accordingly; and in children over five or six,

giving the Schick test first, because of the naturally acquired immunity which is increasing with age, and then the Schick test again in six months, if it is necessary to give those older children treatment; and the Schick test every two years for three or four or five times, perhaps.

The thing which has always disturbed me, and which I was not quite convinced of, is whether or not it is proper to wait that two-year period, and perhaps there is still an element of question. If, for instance, you treat a child in six months you have a negative Schick, is it proper to wait two years before re-Schicking?

At the same time it is rather impractical to Schick patients too often, but it is encouraging, I think, from what Dr. Jost has just said in regard to those children who received two successive treatments of the alum toxoid, then I would guess, and would interpret from these statistics, that that child is perfectly safe, at least for the next two years.

In other words, the practical, or rather arbitrary method we have been using in private practice probably fulfills on the private practice side of the ledger about what the Board of Health has been trying to do in schools.

DR. JOST: I think that that conclusion arrived at is perfectly satisfactory. We think that two doses of the alum toxoid gives a pretty satisfactory degree of immunity, although you must recognize the fact that there are occasional cases that are not protected by that.

We were informed when we started out on this program that once you got the child immune the immunity probably persisted throughout life. You have to check up a little on that statement. You will see in those figures that there is a gradual slackening off on the immunity. Those figures bring that out fairly well. The highest, the best degree of immunity which we got resulted from two doses of the alum toxoid. Two doses of the alum toxoid appeared to be more satisfactory than two doses of the old toxoid, and I believe that that is quite in line with the findings of certain Canadian examiners who have written quite a little

about it. Up in Canada they have hardly used alum toxoid at all. They still hold to the three doses of toxoid and they get to the stage apparently where we do, using two doses of toxoid. They say that there should be three doses of toxoid instead of two, and their results for three doses of toxoid are about comparable with ours of two of the alum toxoid.

DIABETES IN CHILDREN

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Diabetes has been found in children at all ages. Even infants of but a few months have had it, but in general it is rare under six years of age. The causes of diabetes in children are not very well understood. Heredity, of course, plays a very important part, for its influence has been noted in about one-third of all the cases reported. In many cases the onset of diabetes is abrupt. It has often been noted to occur with or after fevers and other infections.

When diabetes occurs in children it usually tends to be severe, for it occurs at a critical time of growth and development. The younger the child the severer is the diabetes. There is one notable difference which differentiates juvenile diabetes from adult diabetes, for unlike adult diabetes there is no history of overweight. Instead there is a tendency to overweight.

Before the discovery of insulin diabetes in children in most cases ended fatally. However, now with scientific methods of insulin and diet treatment at our disposal the diabetic child usually does quite well under proper treatment. He can and does lead a normal, happy life.

It has been noted that diabetes has a tendency to affect children of the better class; children among the poor seem to be less subjected to this ailment. Dr. Duncan has gone so far to say: "I have never seen a newsboy who had diabetes." Rich food, overindulgence in carbohydrates and lack of exercise among the children of the well-to-do are often contributory causes to the onset of diabetes.

As was already pointed out in a previous paragraph diabetes in children has a greater

tendency to end fatally than in adults. For this reason the utmost care is required to keep him free from danger. The blood and urine should be tested at frequent intervals to see that the sugar level is within normal limits. An immediate danger is ketosis, which quite often results from carelessness as to insulin and diet. The next step is diabetic coma, and this often results in death. In children with diabetes it is very important to use all measures to prevent coma, for coma is extremely difficult to treat.

Diabetic children should have as normal a diet as it is possible. This means 12 to 15 per cent of the calories as protein, 13 to 30 per cent as fat, and 45 to 55 per cent as carbohydrate. The fat is of lower percentage than in former days. This arrangement permits of provision for two to three grams of protein per kilogram of body weight, the quantity of food as calories being arranged to meet the child's needs and to stimulate growth and gain in weight.

Fat furnishes weight for weight, double an amount of calories as protein. The weight of fats should equal that of protein. The carbohydrate portion of the diet is divided as follows: two-fifths for breakfast, one-fifth for lunch, and two-fifths for supper.

This is adjusted as required, so that the urine may be kept free of sugar during the 24 hours. The transference of carbohydrate from one meal to another is intended to stabilize the carbohydrate metabolism.

The medicine used, of course, is insulin, and this is given twice daily. The insulin is best given 20 to 30 minutes before breakfast and before supper. The interval between insulin and the meal is occasionally lengthened to 45 minutes or an hour. It is sometimes necessary to give the child a third dose of insulin between 1 and 2 a. m. to keep it sugar-free throughout the night. This is particularly desirable where the disease is severe or has lasted several years and has been poorly controlled.

For insulin reactions some readily assimilated forms of carbohydrate should always be at hand. Fruit is good, and when used can be deducted from the following meal.

These dietary proportions give the child a well-balanced intake easily adapted to both

his needs and his tastes. It is very little different from the diet of his brothers and sisters and decreases his temptations to steal food. There is less chance of acidosis and coma.

The ration of protein, fat and carbohydrate having been determined, the insulin requirements are obtained by dividing the total available carbohydrate (that is, the carbohydrate, plus 58 per cent of protein, plus 10 per cent of the fat) by the figure 5, one unit of insulin being assumed to cover 5 grams of total available carbohydrates. Since a larger amount of carbohydrate is consumed at breakfast than lunch, three-fifths of the total insulin is given at the breakfast dose and two-fifths at the supper-dose. Then, in order to properly balance the diet against insulin, the 24-hour urine is collected in three different specimens divided between the breakfast insulin and lunch, lunch and supper insulin, and supper and breakfast insulin. Such specimens are each day collected and tested for sugar, care being taken not to misinterpret the test because of the green precipitate which forms due to the presence of urates, but only consider the test positive when the precipitate is orange.

Having selected a diet and an insulin dosage, the insulin is increased two units per day until one of the three urine specimens is sugar free. This is usually the supper insulin to breakfast insulin specimen. When this occurs the supper dose of insulin is decreased five units daily until the sugar reappears in this specimen and then is re-increased two units until again sugar free. This process of decreasing and increasing the insulin is again repeated until a second sugar free specimen is obtained, and by seesawing in this manner one finally arrives at a basic dosage of insulin upon which the supper insulin to breakfast insulin specimen can be kept free of sugar.

Dr. Joslin has shown the immense difference that insulin has made in the survival and development of diabetic children. Of 164 children treated by him before insulin came into use, only twelve are still alive. Of 130 treated with insulin 120 are not only alive, but have grown and developed almost normally. Forty per cent of his cases have

required no increase of insulin dosage, and in some of these it has been reduced. The gain in weight has been the same as in normal children, but the gain in height has usually been somewhat less. Insulin has also brought about a normal sexual development in older children. There is no doubt that insulin and proper diet have made possible the normal and healthy growth of diabetic children.

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SOME OF THE NEW ADVANCES IN RADIOTHERAPY*

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Definite increase of malignancies of every type has stimulated exhaustive professional study and lay activity as never before in an effort to determine their etiology and treatment. Radiation treatment of some of these malignancies, to which this paper is mainly and briefly directed, shall be considered.

Radium therapy has made very definite recent progress but is somewhat less radical and less spectacular than by using high-voltage xray. Radium, by improved filters and better protection of normal tissues, combined in divided and more heroic doses, has perceptibly improved our clinical results.

Notable assistance has been rendered by physicists and by the mechanical improvement in xray equipment. These have enabled the radiologist to progress with much more accurate and therefore more confident guidance to a point where we are able to give a tumor area 8 to 12 times as much radiation as formerly, without permanent skin damage. This amount of treatment was considered unsafe a very short time ago.

Professor Coutard of the Curie Institute, Paris, has contributed much to this progress by the use of protracted fractional daily doses and the use of heavy filtration. The recovery of the skin from heavy divided doses of xray has been found to be much greater than previously believed. We are surprised that it took approximately fifteen years to learn the skin's ability to recover from exposure to filtered xray.

*Read before the Medical Society of Delaware, Rehoboth, October 14, 1936.

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In spite of our knowledge of the limitations of the method, roentgen therapy is being used more extensively today than at any previous time. This fact is evidence of its merit. The important advances have come from a knowledge of how best to divide the dose, how best to preserve the normal tissue, and how large a total dose to administer in a given case. Also the treatments are timed in such a manner to most effectively alter the life cycle of the malignant cells. Like the surgeon, the radiologist realizes the limitation that he is frequently unable to foretell the result of his therapy. We are unable to prognosticate the tumor cells' susceptibility and to foretell certain intangible factors which may be termed the reaction of the patient's tissues.

A great deal of work has been done also by our pathologists in the last few years, but, unfortunately, they too are exposed to certain inherent sources of error. The main method for the treatment of malignancy is still by means of surgery, radium, and high-voltage xray, either alone, or more often, two or possibly all three agencies. By high-voltage xray is meant an equipment able safely to send at least 200,000 volts through an xray tube. Various types and thickness of filters are necessary for tissue protection and penetration. The term roentgen is the unit of dose.

Coutard, as you may know, by virtue of his vast clinical and xray experience has deduced a cell-life theory in which, generally speaking, these cells in a given tissue may have two, five or eight or twelve days yet to live before they are replaced by a successor. By irradiating these new cells in their immature state, which he believes to be the most corrective period, and for this reason intensive irradiation should fall upon these cells during this period. The subject of radiation treatment is so enormous that a short paper, such as this one, can only touch generally upon one or two subjects.

The treatment of breast malignancies has long been a controversial problem. I shall present for your consideration what is probably the most concrete method, at the moment, for treating this disease. It was my good fortune very recently to have been a member of an intensive post-graduate course

in Chicago devoted to diagnosis and treatment of malignancies. This was conducted by Max Cutler, radium therapist, Sir Lenthart Cheate, famous surgeon of England, and Professor Coutard, probably the world's greatest xray therapist.

In this course, Cheate proposed that breast tumors should first be irradiated for a therapeutic test of its susceptibility, depending upon the behavior of the tumor to radiation for guidance of further treatment. If the tumor shows definite regression it should be considered radio-sensitive and thorough radiation alone should be the only treatment. If the tumor is found to be resistant to radiation then immediate radical breast amputation should be done.

He also states that when a breast resection is erroneously done on a highly radio-sensitive tumor that disastrous results are practically certain to follow very rapidly. On the other hand, when tumors are composed of highly differentiated cells and herefore radio-resistant the lesion is more likely to remain local and less early to metastasize and is therefore operable. Further radiation in these operable breast malignancies is usually not effective.

Cutler entirely agreed with this procedure. Coutard heartily agreed that this is the most logical manner known for dealing with malignancies of the breast. He recommended that twelve or thirteen days of daily xray treatment should decide whether or not the lesion is radio-sensitive. If the lesion is, therefore, found to be radio-resistant, then operate radically and thoroughly.

He states "The general assumption that all cancers of the breast are radio-resistant is wrong. Cancer of early invasion of lymphatics prove to be more radio-sensitive than those metastasizing through blood vessels. In other words, the bad cases for surgery, those which are prone to early lymph mode metastases, are for irradiation. The bad cases for irradiation (highly differentiated tumors) are good cases for surgery."

The one hundred and forty neoplastic surgeons, pathologists and radiologists attending this Chicago course were more than pleased to hear, for the first time, complete accord

and concrete methods of treatment by three eminent international authorities.

Another recent and very interesting development is that of treating breast malignancies in women still in the menstrual age, has been announced. In the *Journal of the American Roentgen Ray Society* last July republication of a paper by Gerard Smith, of Cleveland, and another paper in the *Journal of Radiology* for June, by David Steel on Radiation Castration in the Treatment of Malignancy of the Breast, were read with a great deal of interest.

We are all aware of the close relation of ovarian hormonal influences in the female breast. In certain cases in which the woman was sterilized by xray there was most favorable response to irradiation in the malignant breast that previously had shown little or no regression. Sossmom, of Boston, states that in the Massachusetts General Hospital all women in the menstrual age are sterilized before irradiating the breast tumor. This favorable clinical response has been found more pronounced, he states, in those women who are having increased pains in the malignant breast during menstruation. These observations may prove to be of great practical value in irradiating breast neoplasms in young women.

One of my cases apparently was of the radio-sensitive type. A young woman noticed an isolated glandular enlargement on her upper thorax, about midway between the axilla and nipple. Her physician excised the area and the pathologist reported "Carcinoma, medullary, metastatic from the breast." In the period between the resection of the glands and the time she was referred to me, approximately three weeks had elapsed, several nodules aggregating the size of a small orange had recurred. No adenopathy could be detected in either breast or axilla. However, I treated the breast and axilla as well as the metastases with 220,000 volt xray, using two millimeters of copper filter. The adenitis has disappeared and she is symptom free. This is a type of case which probably may be considered as offering a more hopeful prognosis, if the prescribed procedure of obtaining a biopsy had been foregone.

Desjardines, xray therapist of the Mayo Clinic, in the *Journal of the American Medical Association*, states that: "Amenorrhoea resulting from radiotherapy is exactly the same as that of the natural menopause except that it comes on more rapidly. Its subsequent course is identical to the natural process, all legends to the contrary notwithstanding."

Generally speaking many radiologists have adopted the Coutard technique or some modification of it in treating practically all malignancies. Heavier filtration and greater distances between tube and patients for the purpose of obtaining greater penetration are used rather generally. This requires much more time, patience, etc.

Ferguson's paper, appearing in the *July American Journal of Roentgenology*, has revised his recommendation for treating his last series of cases of bladder carcinoma. He has found that larger doses of heavier filtration, slightly less than with the Coutard method, and with greater distances has proved more effective than when one-half millimeter of copper was used.

I have applied over 7,000 roentgens to primary tumors of the bladder using the Coutard technique. Insufficient time has elapsed to make any report on these persistent tumors.

SUMMARY

Some of the late developments in radiotherapy have been presented. Surgery, xray and radium are still our most dependable agencies. If, however, this paper may in some degree lead to more hopeful results in treating breast malignancies it will have served a useful purpose. If surgeons are willing to adopt, for the present, the method of first resorting to a therapeutic xray test for sensitivity then our clinical results will, I confidently believe, be infinitely improved.

912 Jefferson Street

PROTAMINE ZINC INSULIN PRELIMINARY OBSERVATIONS ON ITS USE IN AMBULATORY CASES

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With the advent of commercial protamine zinc insulin and the consequent greatly in-

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creased usage of this drug some comment on the difficulties of changing from regular insulin to the new compound would be timely. Through the courtesy of Sharp & Dohme we were able to secure this new compound for clinical trial some time before its appearance on the market. No definite conclusions can be drawn as yet, due to the short time this drug has been available to us, but some idea of the difficulties encountered in switching ambulatory cases from the old type of insulin to the new might be desirable at this time. Undoubtedly this new form of insulin presents many advantages. The greater flexibility in the time for the administration of this insulin is of great value, but it also has increased the difficulty in ascertaining the proper dosage, since the time of administration must also be determined. In only two cases were untoward effects seen. In one the patient was awakened in the early hours of the morning by severe abdominal pains. This occurred regardless of the knowledge that the protamine insulin was being administered. In another case the patient was awakened with severe pain in the arms. A change in the time of administration remedied this. In the first case, however, the use of this new insulin product had to be discontinued.

Three of the cases in which an attempt was made to change from regular insulin to protamine had to be hospitalized because of a pre-comatose state, but these three cases were subsequently discharged on protamine insulin. It must be remembered that this attempt to change from one form of insulin to another was made during the holiday season with its consequent dangers of cheating regarding diet. It must also be remembered that due to the nature of the patients studied many of these diets were approximate and not weighed.

Another interesting observation made was that four of these cases who had attempted to use crystalline insulin with very unsatisfactory results did very well on protamine insulin. It should also be borne in mind that these cases were refractory insulin cases and did not do well on the older form of insulin. A brief summary of several of the cases follow:

Case 1. J. B. Age at onset of diabetes (1933), 13 years. Standardized without insulin. Due to various complications insulin had to be administered in gradually increasing amounts. Despite this, blood sugars were persistently around 300. In December, 1936, the insulin dosage was changed to 20 old insulin in the morning and 10 protamine zinc at night. The blood sugar fell to 14 and the insulin was reduced to 10 O. and 10 P. Difficulty in procuring P. insulin caused the patient to go back to the old dose of regular insulin and the sugar in one week rose to 326. On January 24, 1937, a dosage of 20 O. and 12 P. was started. On February 6, 1937, blood sugar had fallen to 184.

Case 2. M. P. Age at onset (November, 1933), 9 years. Was taking 20-5-20 insulin, with average blood sugar 285. Shock precluded increasing insulin. Then placed on 20 O.-O-20 P. Blood sugars gradually rose. Dosage changed to 25 O.-O 20 P. Blood sugars on January 30, 1937, fell 202, but rose the following week to 286. Apparently there is a mistake in the time of administration of the insulin. Protamine insulin is now being administered after the evening meal.

Case 3. M. A. W. Age at onset (1935), 11 years. Standardized on a weighed diet and maintained fairly normal course until December, 1936. Following intestinal upset at Christmas, blood sugars maintained an average of 280. Patient was hospitalized with a morning blood sugar of 234, and an afternoon of 308. Discharged after re-standardization on protamine insulin 20-0-20 with a blood sugar of 126.

Case 4. A. L. Age at onset (1935), 22 years. Admitted to the hospital in diabetic coma, discharged and maintained fairly level blood sugar on 10-0-5. Now taking 12 P. once daily and blood sugar remains normal. Reports a sense of well-being never felt before. It is not now necessary to vary insulin dosage because of exercise, and the morning shock has ceased.

Case 5. M. H. Age at onset (1931), 31 years. This was a very difficult case to maintain. Has been in coma several times due to dietary indiscretions, infections and emo-

tional upsets. She would experience shocks at night and in the morning without any treatment for the shock would have a blood sugar of 300 or higher. She was placed on 20 0-0-14 P. in December, 1936. Since then she has been able to take a vacation without any untoward effects, something she had not been able to do heretofore, and the morning blood sugars approximate 200, the afternoon 130.

Case 6. Y. G. Age at onset (1934), 64 years. Took 18 units of old insulin daily; sugar 200 or over. On 16 Protamine once daily sugars approximate 150.

Case 7. R. G. Age at onset (1930), 45 years. Average sugars, 250. Standardized in June, 1936, on 25 Protamine (not Protamine zine) once daily, average sugar 150.

Case 8. C. E. Age at onset (1935), 10 years. Controlled without insulin till March, 1936. Sugars jumped to 250 or over. Took 20 units old insulin daily, now taking 10 P.-0-10 P. Average blood sugar dropped to 200.

Case 9. S. S. Age at onset (1932), 30 years. Hospitalized, February 9, 1934. Discharged on 20-15-20. Insulin gradually dropped to 12-0-12, with fairly normal sugars. On December 12, 1936, placed on 10 P. once daily. Since then has had tonsilitis with no increase in the blood sugar level.

Case 10. I. S. Age at onset (1922), 35 years. Average blood sugars approximate 200 on 35 units of insulin daily. On December 9, 1936, was placed on 20 P. once daily. Blood sugars approximate 150.

Case 11. A. C. Age at onset (1933), 51 years. Standardized on 15-15. Average sugar 225 despite increase in insulin. In August, 1936, T. & A. was performed. Was discharged from the hospital on 25-10-25, with a blood sugar of 182. On the nineteenth day of December, 1936, was placed on 10 P.-0-5 P. Now taking 15 P.-0-5P. (the evening dose being given one hour p. c.) with normal blood sugars.

Case 12. C. C. Age approximately 34 years. Diabetic of several years standing. Required insulin four times in 24 hours, with fasting sugars of 250 or higher. Frequent shocks. Now taking P. insulin twice daily. Fasting sugars approximate 200, shocks are

very slight and the patient need not stay awake for a midnight dose of insulin.

The following two cases are recent ones that will be reported more in detail at a later date:

Case 13. M. K. Admitted to the hospital in January, 1937, having been taking 45 units of insulin daily, with sugars of over 200 constantly. Discharged on 15 P.-0-15 P. with normal starving, 11 a. m., 4 p. m., and 9 p. m., blood sugars.

Case 14. W. M. Diabetes of very recent origin. Admitted to the hospital in January, 1937, with a blood sugar of 400. Required 30 units of insulin to maintain a normal starving blood sugar. Was discharged from the hospital on 20 Protamine once daily with normal blood sugars, except at 4 p. m. when the sugar reached 160.

An attempt will be made at a later date to show what progress has been made in these and other cases which are at present under observation. At that time we will endeavor to give the time of administration of the insulin which varies greatly in the cases quoted. We would like again to call attention to the fact that three of these cases had to be hospitalized in a pre-comatous condition, and to emphasize the fact that the change from one type of insulin to another is not unattended with danger. Shock from P. insulin, while rare, does occur, and is more difficult to treat.

In this article O. refers to the old insulin and P. to Protamine Zinc Insulin (Sharp & Dohme). All blood sugars given are fasting blood sugars, unless otherwise noted. Blood sugars were determined mainly by the Folin-Wu method.

WOMAN'S AUXILIARY: A. M. A.

The first news letter of 1937 brings to every member of the Woman's Auxiliary to the American Medical Association my sincere good wishes for a happy and healthy New Year. The beginning of each year makes all of us pause and take stock of ourselves. The passing of time brings many changes in individuals and groups alike. When we as Auxiliary members take stock of our organization we are impressed by the steady growth and

the widening circle of our influence. Sometimes people who take inventory are saddened by what they discover but we have reasons, many of them, to rejoice and be proud of our accomplishments.

As I look back over the years of our existence there are certain things that stand out clearly as sources of pride. First of all I am proud of the work we have done with *Hygeia*. The circulation of this magazine is growing steadily. The women who have directed our course are to be congratulated as are the workers in the field.

How varied, too, have been the types of work undertaken by the states. We are proud of them. There is Alabama giving milk and clothing to the poor and supporting a scholarship fund. We find Arkansas with its fund and with its never-ending making and giving of obstetrical kits where they are most needed. California, among many other projects, has helped raise money for a swimming pool to be used by sufferers from infantile paralysis and has also helped support an orthopedic school. Colorado, in addition to philanthropic projects adopted by the various county groups, has as a state undertaken the raising of money for a Physician's Benevolence Fund. Florida, along with its other activities, has waged a campaign to make it necessary for domestic servants to have health cards. In Georgia we find eager women raising money for a Student Loan Fund that has already helped nine young men complete their medical education. In addition, a campaign for Mother Welfare has given instruction on pre-natal, natal, and post-natal care as well as the care itself to the poor of the white race. Indiana has held all day health conferences for Parent-Teacher Associations. In Minnesota we find that a sale of hand-made articles has earned nine hundred dollars for a tuberculosis sanitarium, and here, too, we find poor children in rural schools receiving cod liver oil through the generosity of the Auxiliary. North Carolina supports a bed in a tuberculosis sanitarium and has named it for the organizer of the state Auxiliary. Through the efforts of the Auxiliary in Oregon, the Healing Arts Amendments, which would have nullified the benefits of the Basic Science Law, were de-

feated. In that same state a school room for handicapped children was supported by the Auxiliary. Pennsylvania contributes most liberally to the Physician's Benevolence Fund and has for years held an all day health conference each spring. Virginia this year took under its care the maintenance of a bed in a tuberculosis sanitarium. This bed is to be at the disposal of doctors and their dependents. In West Virginia in one year Auxiliary members made 3,378 new garments for the use of the needy, and mended many more.

The story could go on and on. Many states have not been mentioned because time and space do not permit but every state is busy accomplishing something worth while. Essay contests, Christmas Seal work, promotion of medical speakers through Speakers' Bureaus maintained by state and county medical groups, legislative work of all kinds done under the direct supervision of the medical society and the Auxiliary's own Advisory Council are but some of the pieces of work being done by the organization to which you and I belong. When your non-Auxiliary friends ask, as they so often do, "What does your Auxiliary do?" aren't you proud to be able to point to the record of achievement which this new year's inventory brings before you?

MRS. ROBERT E. FITZPATRICK,
President.

Hypersensitivity to Acetylsalicylic Acid (Aspirin)

According to Louis E. Prickman and Harold F. Buchstein, Rochester, Minn. (*Journal A. M. A.*, Feb. 6, 1937), hypersensitivity to acetylsalicylic acid is the most common form of drug allergy. The condition is limited almost exclusively to persons with a personal or familiar history of allergy. Particularly noteworthy is the high incidence of hypersensitivity to acetylsalicylic acid among the asthmatic, especially among asthmatic individuals with nasal polyps. Asthma, urticaria and angioneurotic edema are the most common forms of reaction to the ingestion of acetylsalicylic acid by sensitive individuals. The asthmatic attacks are prone to be severe, prolonged and resistant to treatment. Fatal reactions have been reported.

EDITORIAL

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VOL. IX FEBRUARY, 1937 No. 2

THE GREATER EVIL

The following editorial from the New York Sun, of February 2, 1937, is so much appreciated by the medical profession that we reprint it for our local confreres:

Why the medical profession as a whole should be opposed to socialized medicine is apparent to any layman who will take the trouble to study propaganda in its behalf. Dr. Terry M. Townsend, chairman of the committee on Medical Trends of the State Medical Society, presents some aspects calculated to cause concern to the layman on his own account. He has this to say:

"If the public does not awake....they are

likely to have foisted on them a system by which they will be subjected to a pay roll tax for medical service. In addition the workman will be required to contribute to the support of an army of clerks, supervisors, statisticians, 'health study experts,' snoopers, arguers and propagandists. Their job will be to entrench themselves on the public pay roll, interfere with the doctor as much as possible to make themselves important, and spend a large part of their time keeping in right with the bureaucrats above them. America does not need and does not want a medical system run by non-medical people who could not tell the difference between an x-ray and an electrocardiogram."

Dr. Townsend adds that wherever compulsory health insurance is in operation vital statistics prove that the health of the people there is below the standard now existing in the United States. Laymen might not know about that, but the layman who has ever before come into contact with the squirts, whippersnappers and nosey parkers who invariably attach themselves to bureaucracy understands the rest of it right enough. It is bad enough now for a poor man to go into some clinics to be handled by a sprout just out of medical college as if he were a parcel of none-too-welcome merchandise. What it would be under socialized medicine masquerading as compulsory health insurance is something upon which it is painful to reflect.

It is perhaps true that the health of the general public is no better than it should be. But it is by no means certain that public health under socialized medicine would be much better than it is. A greater evil, however, than indifferent health is the growth of the noxious spirit of bureaucracy.

DELAWARE ACADEMY OF MEDICINE

Under the auspices of the Academy a review course in obstetrics of seven lectures will be held. The first lecture will be given on Thursday, March 11th, at 4 p. m., by Dr. Philip Williams, of Philadelphia. On the following Thursdays, for six weeks, Dr. Carl H. Davis, of Wilmington, will complete the course. All physicians in the state are welcome. The subjects are:

1. Causes of Maternal Deaths—Based on Study of Philadelphia Death. Dr. Philip F. Williams (Philadelphia).

2. Prenatal Care—Including Eclampsia. Motion Pictures of Women with Convulsions.

3. Management of Normal Labor Including Analgesia and Obstetric Technic for Both Hospital and Home Deliveries. Motion Pictures of L. O. A. & R. O. A.

4. Management of Face, Brow and Breech Cases. Motion Pictures of Face, Brow, and Breech Cases, and Version.

5. Use and Abuse of Forceps. Motion Pictures of Craniotomy and Forceps Deliveries.

6. Management of Obstetric Complications.

7. Caesarean Sections. Motion Pictures of Classical Sections—Low Cervical and Porro Operations.

The annual election was held on January 22, 1936, with the following results:

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MISCELLANEOUS

The Centennial of the University of Louisville Medical School

The University of Louisville Medical School is the second oldest medical school now in existence west of the Alleghenies and the oldest municipal medical college in the United States. It celebrates its centennial March 31st to April 3rd, 1937, at Louisville, Kentucky.

The Alumni are urged to make their plans now to attend their alma mater and participate in the celebration. There is an unexcelled clinical program by outstanding guest speakers. Ward rounds daily at the hospital and lectures in the forenoon and afternoon. There will be numerous scientific exhibits in the various departments of the university. For the visiting ladies unusually interesting entertainment has been provided. There will be motor trips through the beautiful local parks and to the famous blue grass region. The historic Old Kentucky Home at Bardstown and Lincoln Memorial at Hodgenville are also included in the itinerary. Mammoth Cave is within easy motoring distance for those who wish to visit the natural wonder. Lexington and the famous race horse stables are but a short distance from Louisville and in the heart of the blue grass region.

The Alumni will shortly receive advance notices and printed programs of the centennial celebration. They are urged to make their plans now to attend.

Glycerine Role in Medicine Analyzed

While the large and growing importance of glycerine in many branches of medicine and pharmacy is known to everyone in a general way, it remained for Milton A. Lesser, a research chemist, in collaboration with John R. Murphy, M. D., to make the first extensive survey of the subject. Their report, entitled "Glycerine: Its Role in Medicine," published in three instalments by the American Professional Pharmacist, has just been made available as a reprint brochure by the Glycerine Producers' Association.

Based on the U. S. Pharmacopoeia and the National Formulary, as well as a study of reputable proprietaries and foreign medicinals, the Lesser-Murphy Survey traces the function of glycerine in general prescriptions and in specialized fields, including gynecology, varicose therapy, endocrinology and hormone therapy, surgery and wound dressing, anaesthesia, dentistry, chiropody, etc. The usefulness of glycerine in medicine, the authors indicate, derives from its unique properties as a hygroscopic agent, as a solvent, as a sweetening agent, emollient and demulcent.

"The data revealed by our study demonstrate," they write, "that this fluid is even more widely used than is generally supposed, ranking among the leading ingredients for universality of application in all types of medicine."

Of 194 galenicals listed in the U. S. Pharmacopoeia XI, they show, "more than 12 per cent contain glycerine, a large proportion for any single chemical." Also, "glycerine has an important place in the National Formulary VI (N. F. VI.) where it is an ingredient of more than 16 per cent of the 481 preparations listed. . . . Significant, too, is the fact that of 55 elixirs listed, 29 contain glycerine, and that of 32 liquors (or solutions) 9 contain glycerine."

An analysis of prescriptions made in a group of St. Louis drug stores, as part of a national drug store survey, bears out these facts. It shows that among the chemicals, galenicals and miscellaneous ingredients used in more than 15,000 prescriptions, glycerine is the liquid most used, except, of course, for distilled water.

The Lesser-Murphy report lists examples of standard preparations, non-official remedies, and therapeutic procedures in which glycerine plays a part, in many instances giving detailed descriptions.

"Besides being an important factor in pharmacy and medicine," it adds, "glycerine finds its way into the everyday life of the average citizen in many more ways than is commonly supposed. A small bottle of glycerine should be found in every home and emergency medicine chest."

BOOK REVIEWS

The Practice of Medicine. By Jonathan Campbell Meakins, M. D., Professor of Medicine, McGill University. Pp. 1343, with 505 illustrations. Cloth. Price, \$10.00. St. Louis: C. V. Mosby Company, 1936.

A new "practice" which would make a most welcome addition to any library. It approaches the problem of medicine in a slightly different manner than other books. The illustrations are all excellent and the language throughout is simple and easily understood. The style is most smooth and engaging, being neither tiresome nor didactic.

A special feature is the introduction to almost every one of the 21 chapters, giving an almost symptomatic resume of the subject to be discussed. At the close of each chapter is given the list of references. The general introduction is well worthy of perusal, giving as it does some understanding of the psychology of the patient. This idea is adhered to throughout the book—the object of diagnosis and treatment is the recovery of the patient, not the scientific establishment of a diagnosis. An interesting feature is the inclusion of acute rheumatic fever under Specific Infection of the nasopharynx and mouth.

There is another extremely unusual feature—an analysis of the symptoms of 1,000 patients drawn from all walks of life. Only 49 "complaints" which might be classed as symptoms were found with any frequency in these 1,000 cases, and of these 49 six occurred in almost half the incidence.

The only criticism that can be offered is that in some instances too little space is devoted to treatment, and the various excellent tables are not listed in the index. However, the criticism in regard to treatment is more

apparent than real, since it is in keeping with the general concise nature of the language throughout the book. Where treatment of any condition, such as some of the blood dyscrasias, is decidedly unsatisfactory this simple statement is made and thus endeth the discussion. However, an index of the tables would be of decided value.

This is by far the best recent book of its kind that has come to the attention of the reviewer. Its purchase is decidedly recommended.

Management of Obstetric Difficulties. By Paul Titus, M. D. Pp. 879, with 314 illustrations. Cloth. Price, \$8.50. St. Louis: C. V. Mosby Company, 1937.

The author prefaces this book with the explanation that it is not a conventional text book, deliberately omitting normal pregnancy and labor. Technic of procedure is also deliberately omitted in a large number of instances. Dr. Titus devotes a whole chapter to the diagnosis and treatment of sterility, omitting a great deal of controversial discussion. The subject matter is concise and informative and still not too brief.

However, he goes into a great deal of detail in the diagnosis of pregnancy, as well as difficulties that may arise during labor, assuming, and rightly so, that apparent difficulties will become less difficult or the difficulty entirely disappear with correct diagnosis.

This book should be of great help to the general practitioner who does obstetrics. In many instances, it will benefit the specialist.

Synopsis of Ano-Rectal Diseases. By Louis J. Hirshman, M. D., Professor of Proctology, Wayne University. Pp. 275, with 180 illustrations. Cloth. Price, \$3.50. St. Louis: C. V. Mosby Company, 1937.

Well written and wonderfully illustrated is this book of Dr. Hirshman's, and should be in the hands of every man who attempts to diagnose or treat any rectal condition, being easily read and quickly assimilated by the busy practitioner, yet sufficiently complete in essential details, to be of particular interest to the general surgeon.

Dr. Hirshman's long experience in teaching and practicing proctology qualifies him to

treat his subject in a clear, concise way without omitting the necessary details.

I am glad to recommend it to you as a very valuable addition to your reference library; it is every bit meat. His description of technique in operation and after treatment alone are well worth the price of the book.

Modern Treatment and Formulary. By Edward A. Mullen, M. D., Assistant Professor of Pharmacology and Physiology, Philadelphia College of Pharmacy and Science. Pp. 707. Cloth. Price, \$5.00. Philadelphia: F. A. Davis Company, 1936.

This compact manual is one of the most encyclopedic works its size extant. Devoted to treatment, it contains over 2,000 selected prescriptions, many diet lists, tables of differential diagnoses, dose tables, weights and measures, periods of gestation and the so-called rhythm, and brief sections on toxicology and surgical emergencies. The work concludes with a physician's interpreter, in five languages, that ought to bridge over many difficulties with the foreign patients.

This work can be most heartily commended.

Carcinoma of the Female Generative Organs. By M. C. Malensevsky, M. D., and E. Quater, M. D. Translated from the Russian by A. S. Schwartzmann, M. D. Pp. 225. Cloth. Price, \$5.00. Boston: Bruce Humphries, Inc., 1936.

The eleven chapters in this little volume are each by a different Russian teacher, and embrace the questions of the pathogenesis, pathology, clinical picture and treatment of cancer of the female pelvic organs and the breast. The work concludes with a chapter on cancer in this sphere and its effect on industry, which accentuates the so-called blessings of the Russian brand of social insurance.

The work contains much of fact and not a little of theory — at least not all the statements would go unchallenged by a critical reader. The illustrations are satisfactory. There is no index. The references to American literature are notably few. The book is, however, fairly well rounded out, despite its numerous authors, and will be of interest to gynecologists and radiologists.

1789—MEDICAL SOCIETY OF DELAWARE—1937

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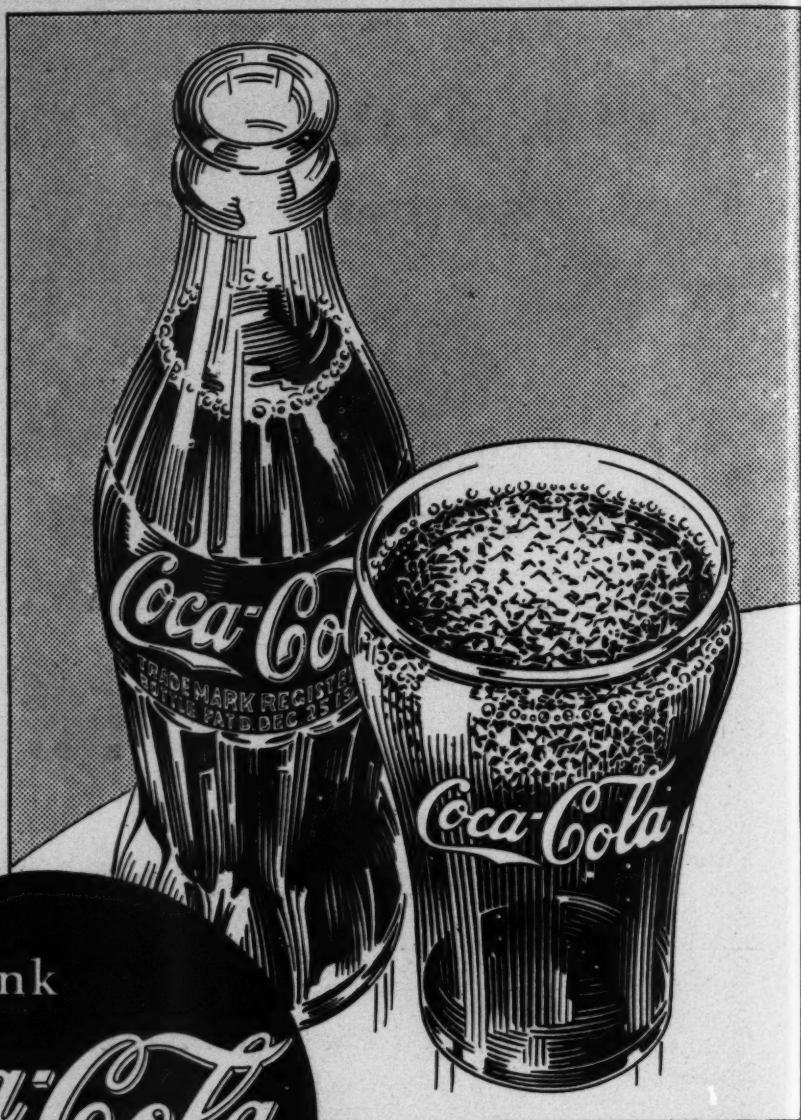
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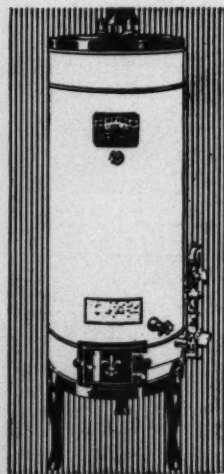
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